



# Building Asset Management and GIS Capabilities within Regional Australia

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[shepherdservices.com.au](http://shepherdservices.com.au)



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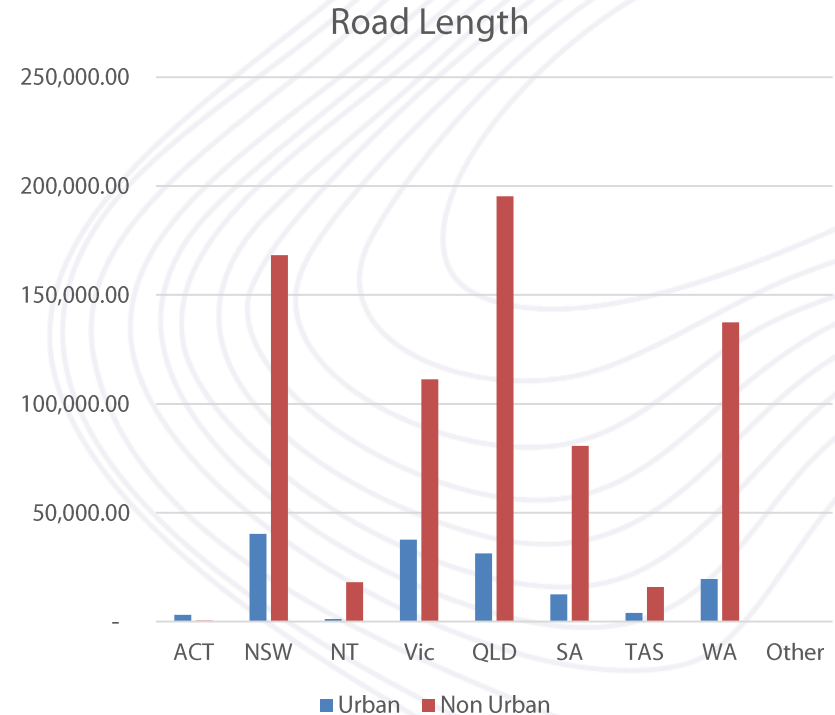
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# State of Assets



# Introduction

- Australia has a combined road length of 877,651Km of which 83% (727,294 Km) is classified as Non-Urban
- \$26.1B was reportedly spent on roads by all governments in 2016-17
  - Commonwealth \$7B
  - States \$13.4B
  - Local \$5.7B



Source:

BITRE, Key Australian Infrastructure Statistics 2018, Table 2 and 3 (page 9)  
BITRE, Key Australian Infrastructure Statistics 2018, Facts and Figures (page 2)





# State of the Assets Report

- \$30B is required to renew and replace infrastructure in poor condition, of which half related to roads.
- Post war and baby boomer generation periods of construction.
- Steady increase in renewal spending since 2005, however the proportion of poor condition assets is still increasing.



# Value of Assets in Poor Condition

**\$13.6B**



**\$5.5B**



**\$4B**



**\$91M**



**\$813M**



**\$1.3B**



**\$5.1B**



**MY VIEW**

**Research  
Challenge  
Solutions**





# My Take on the Results!

- Through the analysis of the data from participating councils, \$14.5B of assets require renewing for roads and bridge assets.
- Questions to be answered:
  - *What's the Risk to the Community?*
  - *What's the level of services for these communities?*
  - *Are the figures reliable, and if so, how can this be overcome?*
  - *How mature is the asset information really?*



# Challenges in Regional Locations

- Accurately representing asset dimensions.
- Does asset information flow through to financial registers?
- Methodology by staff and organisations.
- Time spent on Asset Management (AM)? Staff are busy delivering works programs.
- If behind in AM maturity, may require assistance.
- Availability of resources.
- Rural / Regional councils have lower staff levels.
- Data Currency.





# Case Study



**SHIRE OF MURWEH**

MORVEN - CHARLEVILLE - AUGATHELLA

# Ultimate Solution

**Reliable asset data is the foundation of  
great AM systems and knowledge:  
Ultimately benefiting the community  
with cost savings.**



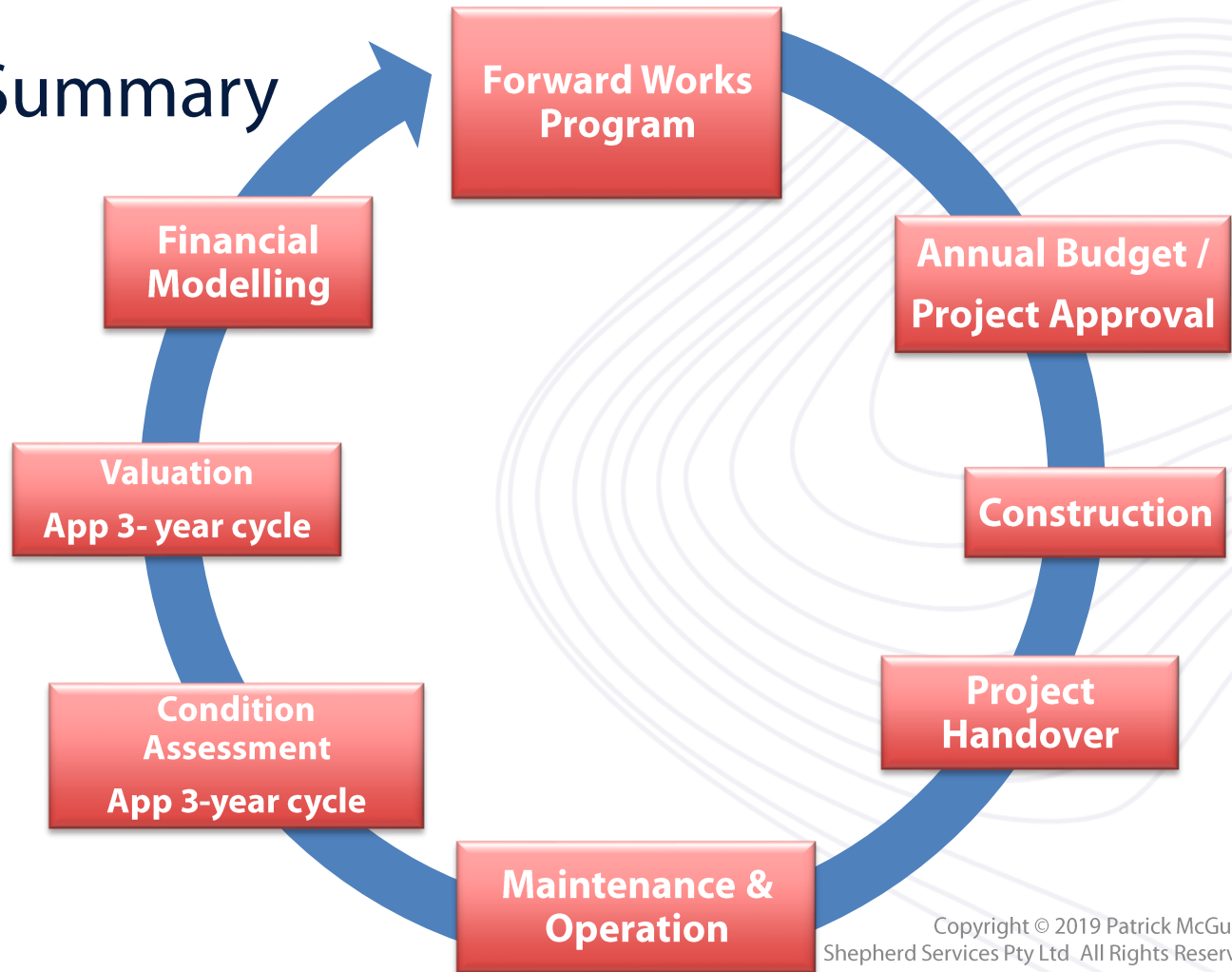
## Ultimate Goal

**Implement best practice asset management to achieve effective whole-of-life costings of its assets to ensure Council's long-term financial sustainability.**





# AM Cycle Summary



# Assessing Client's Data

- No linkage between mapping only excel data to financial system.
- Not always matching IDs between last valuation and mapping / Excel.
- Agreed to purge financial asset information and create a direct linkage through new uploads.



# Condition Surveys



**RACAS<sup>®</sup>**  
Powered by [shepherdservices.com.au](https://shepherdservices.com.au)  
road asset condition assessment system



# Condition Surveys

- Entire network driven by our Road Asset Condition Assessment System (RACAS) hardware.
- Analysis using Virtual RACAS.
- Playback available on Council systems.
- SHEPHERD verified older assets to determine age accuracies.
- Field inspections and verification by staff.



# RACAS<sup>®</sup>

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road asset condition  
assessment system



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road asset condition  
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# Road Condition Modelling and Works Programing

- With no existing segment data it was agreed to model based on certain segment metrics in Rural and Urban locations.
  - Segment lengths replicated in mapping.
- SHEPHERD modelling fed in several Council metrics and defects to determine a condition.
- Low condition segments determined a works program to review and undertake.



# Valuations and AMPS



# Asset Valuations

- Determined useful lives per engineering assessments and what Council is experiencing in the area.
- Unit rates developed per projects.
- Uploaded new financial data with asset codes





# Road Quantities

- 571 km sealed (\$154M – 10% surface)
- 580 km unsealed (\$25M – 17% pavement)
- 1,704 km formed roads (\$84M)
- 62 km kerb (\$6M)
- 15 km footpaths (\$4M)
- 19 vehicle and 6 footbridges (\$13M)
- 101 causeways (70 sealed) (\$5M)
- 305 floodways (147 sealed) (\$2M)
- 7 flood mitigation structures (\$20M)
- 836 rural signage and traffic mgt (\$2M)
- Stormwater (\$12M) 423 culverts, 24 open drains, 180 boxes & pits, 7 km pipes
- Airport (\$14M) 12 runways, electrical & visual aids, 4km fencing, 3 taxiways, 6 apron, parking

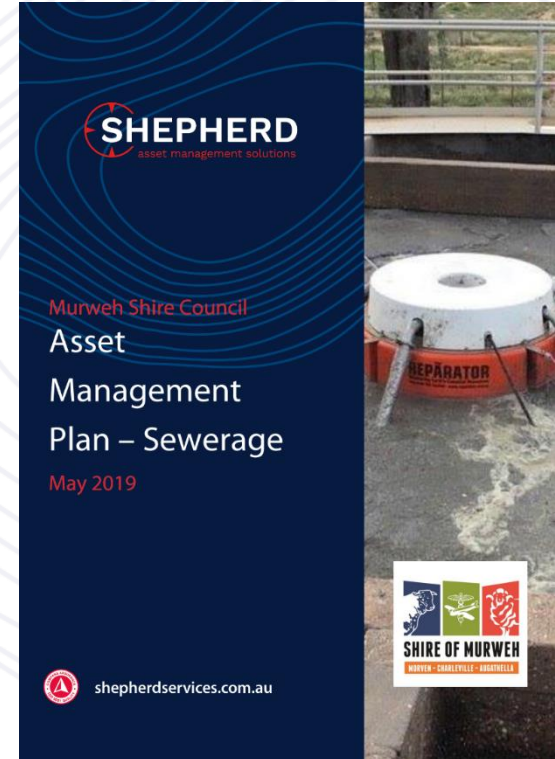
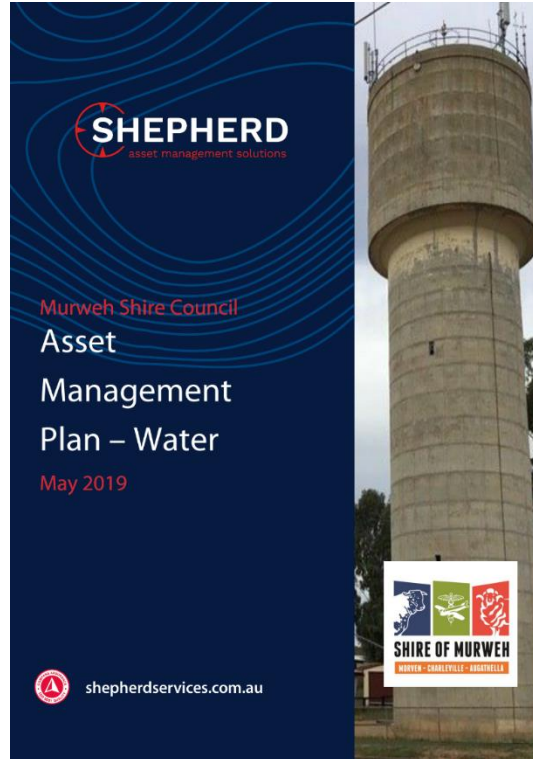
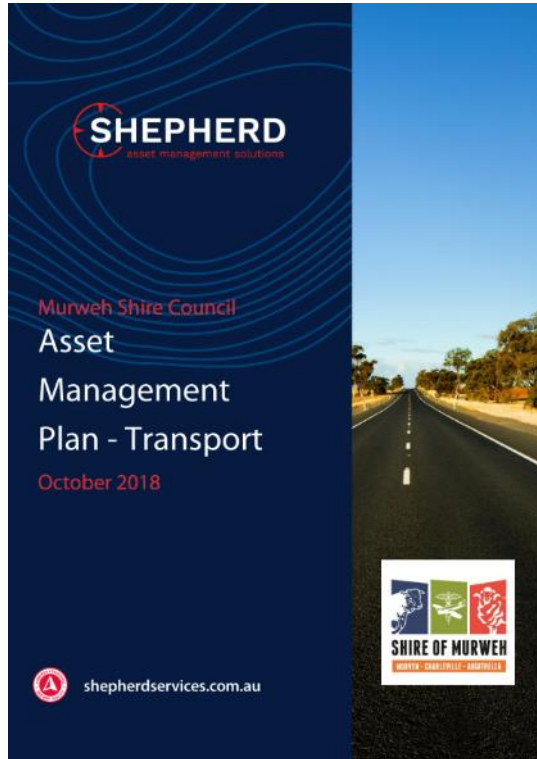
**\$338M total replacement costs (81% roads)**

**\$3.3M Annual Depreciation (75% roads)**

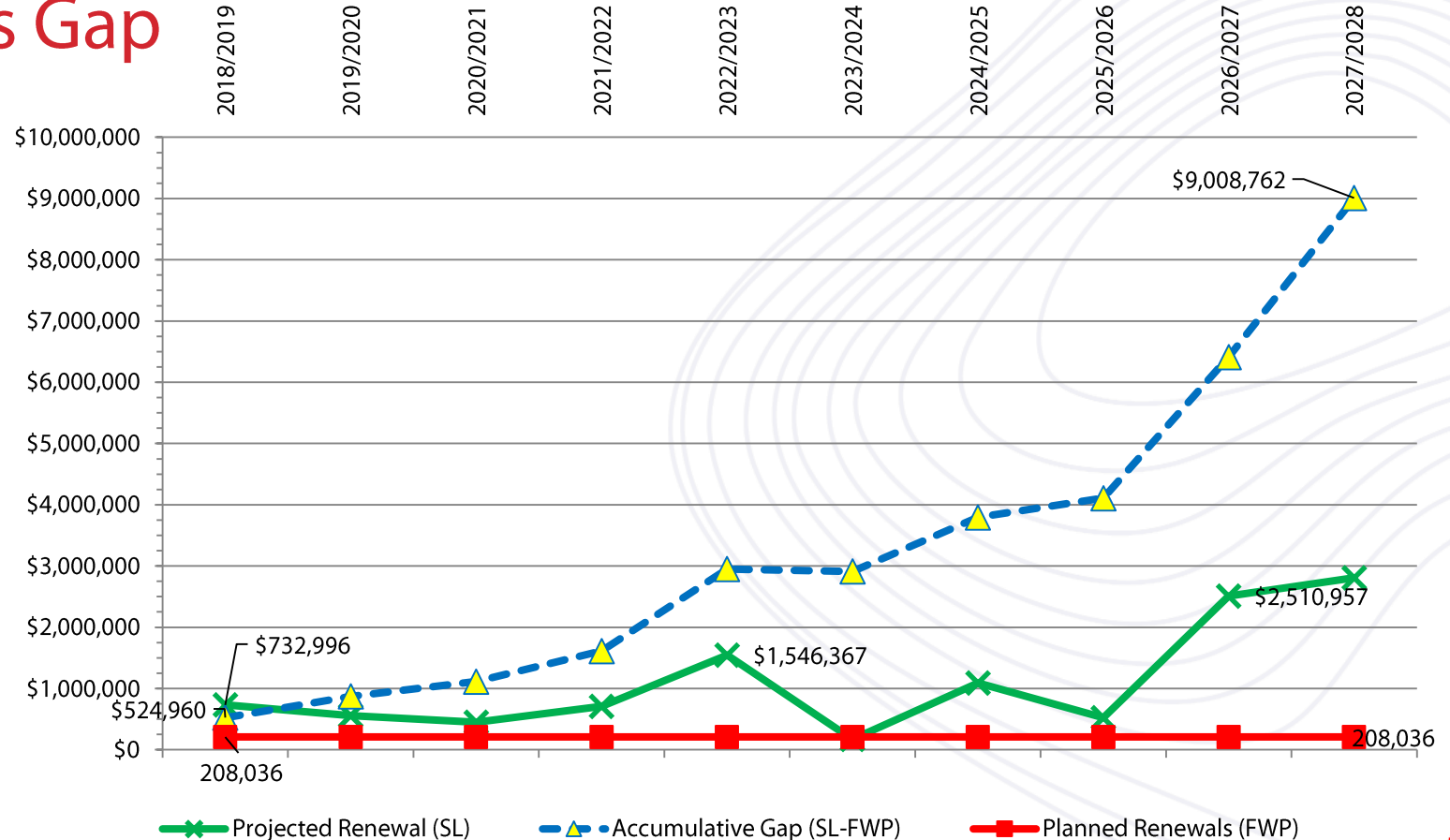
**LRRS = 31% of length**



# Asset Management Plans



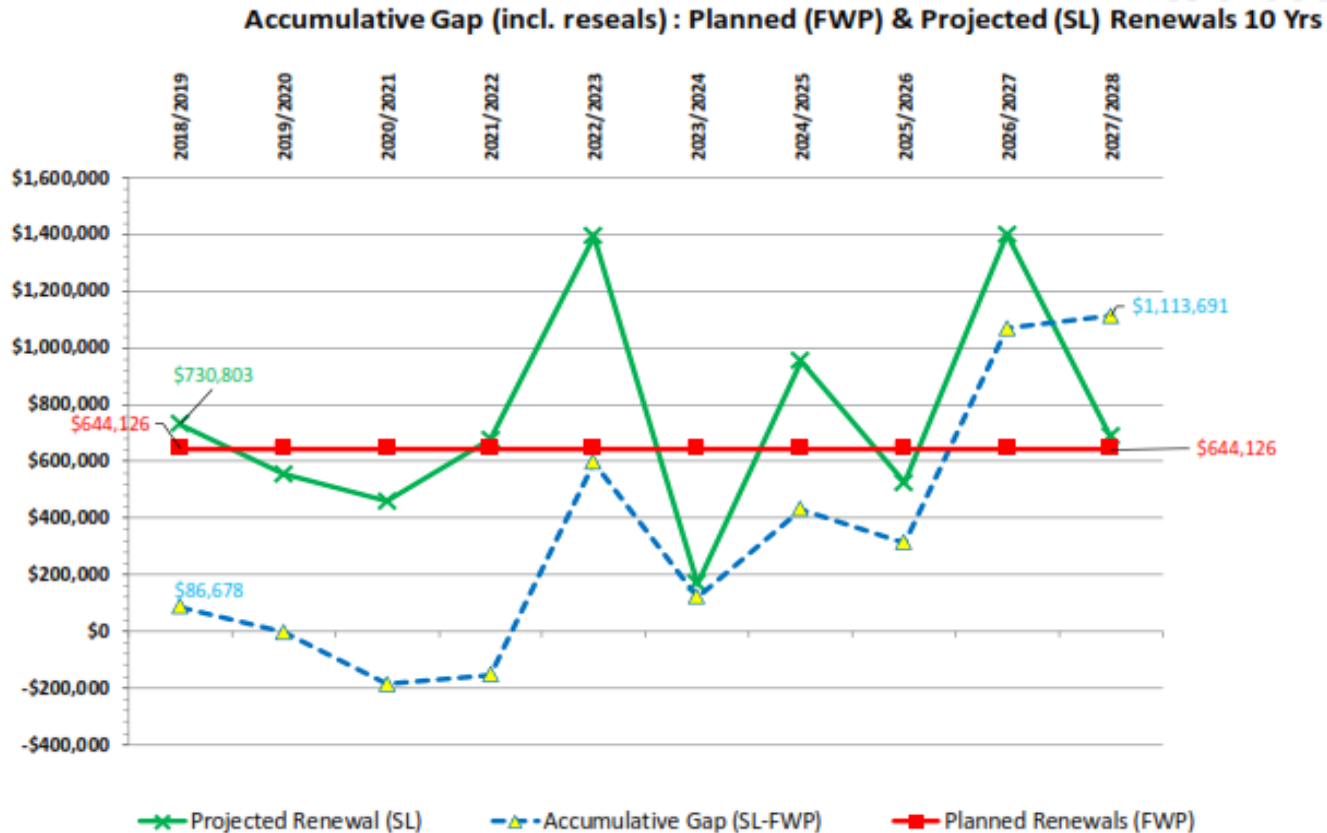
# Roads Gap



Accumulative Gap: Planned & Projected Renewals 10 Yrs



# 10 Year Gap – Including Recommendations







# Creation of Mapping Layers

- Transferred Excel data into mapping
- Created segments as per the modelling lengths
- Updated Water and Sewerage data
- Standardised mapping layer schemas
- Identified Improvement Plan
  - i.e. verification of urban stormwater drainage assets





# Improvement Plan



# Improvement Plan

IMPROVEMENT TASK	TIMEFRAME
Undertake regular (3-year maximum interval) road condition assessments (using RACAS) and analyse using VRACAS.	2021/22
Review planned renewals and associated budgets based on results tabled in this AMP (from valuation condition renewals).	June 2019
Review job costing for maintenance and renewal activities (by road) – gravel resheeting and pit management are renewals for unsealed roads; reseals and heavy patching are renewals for sealed roads.	June 2019
Measure performance against assigned service levels	June 2019
<p>Continue to improve and maintain a comprehensive register of all assets and required attributes for managing them in the GIS:</p> <ul style="list-style-type: none"><li>• Undertake audit of road components.</li><li>• Complete analysis of map data and audit asset date. Utilise RACAS data for initial review.</li><li>• Ensure all infrastructure is captured (K&amp;C is missing in some streets). Road drainage assets need to be surveyed at Morven and Augathella (only completed at Charleville).</li></ul>	Prior to next Comprehensive valuation





# Improvement Plan

## IMPROVEMENT TASK

## TIMEFRAME

Further develop collection forms to capture defects and condition/failure data for assets as required.

Ongoing

Undertake review of road network and apply standardised Road Hierarchy (i.e. 3 to 9B?), not 1 to 4 currently.

June 2021 (prior to next road assessment)

During project identification stage include financial impacts of new work, i.e. asset write-offs, depreciation impact and possible maintenance implications of doing the work (increase in maintenance expected or same?).

Immediately

Start componentising construction jobs into appropriate assets as per the Asset Accounting Manual Shepherd Services will provide later in 2018.

Immediately

Complete planned inspections – major components only, i.e. Major culverts / bridges (yearly program), pathways, Load limits on bridges f required.

Ongoing



# Any Questions?

Visit us at the SHEPHERD trade stall or  
contact Pat McGuire on 0403 872 090



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